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## Editor's Note

I chose to devote an issue of *Primary Source* to constructing archival facilities after attending the symposium *From Gray Areas to Green Areas: Developing Sustainable Practices in Preservation Environments*. Speakers from the Getty Conservation Institute, the Image Permanence Institute, Texas' Director of the State Energy Conservation Office and others introduced me to foreign terminology like radiant barrier roofs and thermal continuity. ASHRAE, HVAC, WOFI, and of course LEED made repeat appearances in my notebook. I now know three different types of energy-efficient humidification methods: compressed air atomizer, ultrasonic humidifiers, and high pressure cold water fogging. Architects, engineers, conservators, and cultural resource managers presented talks on the particular challenges historic buildings and collections pose to green design and offered useful solutions for creating sustainable environments for heritage collections. For example, efficient use of natural light saves on electricity, but UV rays damage art and other works on paper. Architects and engineers must devise clever deflection systems to simultaneously bring in sunlight and prevent damage to documents and paintings.

The very narrow temperature and humidity parameters recommended by our profession for the ideal storage environment raise energy costs and require a lot more of it. I learned that buildings use two thirds of the country's electricity and that one standard light bulb equals a quarter ton of coal. What sorts of compromises should we make in order to protect both our collections and the environment? For one thing, perhaps the temperature and humidity requirements are too strict. As one speaker mentioned, if these limits were very true we would have few historical artifacts left in existence. Perhaps we could be more flexible? But for another, we should take steps in the building design phase to combat high energy usage. I will never see a reason not to have an overhang, after this conference, and shaded windows are a must.

While much of the terminology was scientific and the acronyms new, few professionals spend as much time considering the physical structure and ambient environment of the buildings in which they work as those of us dealing with special collections. We worry over a dead roach or a bit of cookie in the hall. Rays of sunlight distress us, a whiff of mold creates, quite simply, panic, and we wonder how the collections will make it through another August like a farmer with a crop. Do we learn this in school? Naturally I found the subject matter intriguing in its purity of focus. Let's talk about how we build our buildings, how we store our things, and how we might do a better job of saving energy in the process. I had a wonderful time.

For all the talk of the best humidification and LEED levels etc. one wonders how we as archivists and librarians and curators, often not the folks in charge of the whole operation, manage to ensure that architects and designers and contractors follow even the basic principles of archival facility construction. Who will insist that a sprinkler system is not the way to go or that the storage areas should not have any windows? I requested papers from those who have been through a renovation or new building construction to find out.

Please enjoy -

Peggy Price  
Editor

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# Landing on The Right Track: Developing an HVAC System for a New Repository

Forrest W. Galey, Special Projects Officer, Archives and Records Division, Mississippi Department of Archives and History

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Years ago I sat in a crowded theater and watched the film *Indiana Jones and the Temple of Doom*. Indy and his companions escaped from a crashing airplane by inflating a rubber raft and using it to sail out of the plane, slide down a snowy mountainside, and float down a river. The audience reveled in every stunt, save one, throughout the movie. As the main characters make an escape by charging along a roller-coaster of railroad tracks in a mining cart, the cart takes flight over a crevasse, lands on the next set of tracks perfectly, and rolls forth at breakneck speed. Expressions of disbelief emanated from every row and even I thought, "What kind of rubes do they think we are; any four-year-old knows how difficult it is to align those miserable little train wheels along the tracks."

What does this have to do with building planning? I think Mr. Spielberg grabbed our attention with the exotic bits but he slipped up when he based a stunt on something that was familiar to everyone who had ever played with a train set. The audience reverted to memory instead of remaining open to possibility. I think we run into a similar problem in working with architects and engineers in designing archival repositories. Archivists are soaring along in a mining cart of lofty archival standards and practices, and the architects, relying on what they already know, are trying to land us on familiar tracks.

In order to get beyond this reliance on the familiar, and yet land safely, you will need to determine your expectations, communicate these to the designers, and verify that communication during various stages of the planning and building process. One of the most effective, and reassuring, means of accomplishing these goals is to employ a consultant who can advise both you and the designers, and verify that your needs are met.

The administrative offices and the Archives and Library Division of the Mississippi Department of Archives and History were located in the Charlotte Capers Building in Jackson for over thirty years. The Capers Building was constructed in 1971 for the express purpose of being an archival repository that would meet the state's needs for the next two decades.

As early as 1978 it had become apparent that space for the increasing number of collections, programs, and employees was not adequate. A more gradual realization was that our building's environment and security features were never going to live up to the standards we had developed and that, although we were ahead of the game programmatically, we were not structurally equipped for the electronic records revolution.

Planning for the William F. Winter Building began in earnest in 1997 with three events. Five members of our staff were accompanied by the project architect and project manager on a tour of four new or soon to be renovated archival repositories. The greatest benefit of the tour was the clear demonstration to the architects that our requests for specialized systems and materials were not unreasonable or idiosyncratic.

After the trip we conducted a tour of our own building emphasizing the physical nature of the

material to be preserved and handled. In the case of electronic records, we displayed a variety of equipment required to provide access to the records. This approach seemed to aid the architects' in refining their high-concept ideas into practical designs. They were able to focus on the task of creating a building that would meet the dual, and sometimes conflicting, objectives of preservation and accessibility.

The third event was the establishment of staff Discussion Groups to outline programming in greater detail and to express our concerns for and visions of the new building. Written reports were forwarded to the project architect who reviewed the reports with one or two Department employees. We determined which consultants we wanted to use and expressed our interests to the architects and the state's building authority.

Our staff understood that there would be many compromises; however, we determined that in regard to the HVAC system there should be hard and fast guidelines. We knew that our location in the Deep South would pose a challenge and that insistence on extremely low temperature and humidity might increase the chance of having a system that could achieve proper conditions but not maintain them or would cause an unreasonable increase in energy costs during the years of operation.

Bill Lull, of Garrison/Lull, was contracted to review the design documents for our building. Lull toured our existing facility and met with our staff and the architects and engineers. Although the schematic plans had established the footprint of the building and the arrangement of the interior spaces, he was able to work with our staff and the design professionals to improve the plan. Ideally, the services of an environmental consultant are secured prior to the design document phase.

The Winter Building is more than three times larger than the Capers Building and has over 39,000 s. f. of archival storage space. It has six floors and is built into the side of a ridge so that some areas are below ground or partially below grade along the north and south slopes. The sub-basement is a mechanical area; the first floor is at ground level on the eastern side and serves as a receiving area and, for the most part, a stack storage area; the second floor is devoted to stack storage; the third floor is at ground level on the western side, serves as the main entrance, and houses the public areas of the building; the fourth floor houses archival work areas and offices; and the fifth floor houses administrative offices and the staff lounge.

Our staff had measured collections, made twenty-year projections for collections growth, and broken down the figures according to type of media and preservation standards. We generated statistics for ideal media-specific archival zones but we understood that the cost of establishing even a few separate zones within the stacks would be prohibitive. This prepared us for the notion of having only one zone so long as the temperature and humidity did not fluctuate beyond the accepted range, ventilation was adequate, the system was reliable, and the environment was the best for the greatest volume of materials and acceptable for the remaining collections.

Lull recommended four distinct zones; however, we were only able to incorporate three of these in the Winter Building. There is one zone at 60°F and 40% RH for the archival storage area that houses the majority of our collections which consist of paper, books, and photographs. He also suggested a 68-72°F and 40-60% RH zone for archival office spaces and public research spaces, areas where collections are exposed for a relatively short period. The third zone is in nonarchival office areas where the temperature and humidity may exhibit greater fluctuation. Lull also pinpointed "offending spaces" such as the Isolation Room and provided for their separate ventilation. (It is our plan to construct the fourth zone, a smaller "cool" storage vault as a part of

building renovations associated with the State Records Center. This cool zone will be about 40° F, have 35% RH, and will house microfilm, motion picture film, and film negatives.)

We had already determined that we wanted as few as possible of the HVAC mechanical components in or on top of the building and the architects had met this objective by designing a mechanical plant apart from the main building. However, the engineers had designed the system within the repository as if it were a regular office building with little regard for archival concerns and the necessity of maintaining conditions twenty-four hours a day, seven days a week, for the next twenty years. Our refusal to proceed without resolving the HVAC issue and a comprehensive meeting while Lull was on site had the effect of putting all of us -- administrators, archivists, architects, and engineers - together, in the aforementioned mining cart, looking desperately for a safe place to land.

Lull's archival perspective helped settle these HVAC issues for us and his mechanical perspective redirected the architects and engineers from the familiar construction methods to which they were accustomed and toward the unfamiliar, exotic, if you will, demanding solutions necessary for an archival repository. In our case, it is the use of desiccant wheels to remove humidity from air drawn into the building, a technology not unique but rare enough that ours is the only building with this type of system in the state.

Lull was able to communicate the overall concept, describe the basic design for a system that could accommodate our needs, provide detailed information about system components, and even commiserate with the engineers about the difficult job ahead. They decided to extend the sub-basement to accommodate both the added equipment for the multiple zones and the mechanical equipment that would otherwise have been housed on each floor and simply run ductwork up through the mechanical rooms of the lowest four floors.

Another, less obvious, aspect of the HVAC system, the waterproofing and insulation methods and materials were revised as well. This meeting also allowed us to express our concerns about potential damage from leaking pipes and volume boxes with hot water reheat coils. The engineer revised the plans by running pipes and locating volume boxes above areas, usually in corridors, where there should be little or no collection material or expensive equipment.

Lull's suggestions solved the environment maintenance and energy cost issues by allowing for the use of familiar methods and materials where appropriate but insisting on the use of uncommon methods and materials where necessary. Furthermore, his unsolicited reinforcement of one of the staff's ideas convinced our administration of the need to hire a Facilities Manager for the new repository.

During the meeting, the engineers bought into Lull's recommendations almost immediately and they impressed him as being more than capable of meeting the challenge. We used Lull's follow-up report to devise questions for the architects and engineers and to check plans as they were made available to us. The architects and engineers used the report to assist them in making the revisions.

Our staff was able to read the plans well enough to determine that mechanical systems had been changed as expected but we could not verify that the right parts and products were specified or that the construction specifications would result in the HVAC system we were expecting. Lull was able to verify the engineers' hits and misses and was instrumental in ensuring that designs and specifications for products and installation were correct.

The architects, engineers, and designers who worked on our project spent an inordinate amount of time and energy learning about our unique building needs, responding to our comments and questions, and meeting with our staff and consultants. A groundbreaking ceremony was held in February 2000 and the architectural team continued to meet with us throughout construction to refine the details. The Winter Building was opened to the public in November 2003 and we have been delighted with both the beauty and functionality of the facility.

The construction of an archival repository and an appropriate HVAC system requires an uncommon knowledge. The services of an experienced consultant are, in almost every case, essential. Essential: to ground archivists' unfeasible expectations and keep us from flying off the track; to prevent architects' and engineers' over-reliance on familiar methods and materials; and to bridge the gap between our disciplines with communication and verification that may lead to the creation and maintenance of a successful archival environment. If you are embarking on a building project, you have my sincere wish for a happy landing.

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Forrest W. Galey is a graduate of Mississippi State University and was employed by MDAH as Graphic Records Curator and Head of Special Collections prior to holding her current position as Special Projects Coordinator. She served as a liaison between the Division staff and the architects and builders of the William F. Winter Archives and History Building throughout the design, construction, and occupation phases of the project.

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# Green Archives: Applications of Green Construction to Archival Facilities

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## Introduction

The primary mission of archives as cultural and administrative institutions is to preserve and make available society's collective memories captured in archival materials for future generations. The development and long-term operation of archives in a sustainable manner are critical to accomplish this mission. Applying green or sustainable construction to archival facilities is one way to increase the sustainability of archives. Green construction methods provide various environmental, social and economic benefits to improve the serviceability of a building during its lifetime after the construction is completed at the site. The Building Services Research and Information Association (BSRIA) defines sustainable construction as "the creation and responsible management of a healthy built environment based on resource efficient and ecological principles." Applying green construction to buildings means more than adding a couple of green elements to save on energy bills. Green construction reflects consideration of the impact of buildings on occupants and on the future of our global environment. Through building green archival structures, archives can respond to social concerns about climate change, global warming and harmoniously living with nature.

In November 2007, the School of Information's Kilgarlin Center for Preservation of the Cultural Record at the University of Texas at Austin hosted the From Gray Areas to Green Areas: Developing Sustainable Practices in Preservation Environments (GAGA) symposium. This two-day symposium aimed to examine sustainable practices in cultural heritage preservation environments. Professionals in the fields of library and information science, architecture, engineering, historic conservation, and preservation administration were invited and shared their experiences and thoughts of sustainable practices in preservation environments. This symposium opened up the floor for preservation professionals to discuss and develop "green" approaches for cultural preservation facilities. I participated in this symposium as one of the symposium organizing committee members. This study was inspired by my experience in this symposium.

In this paper, I focus on archival facilities. The purpose of this paper is to address general ideas about how to build green archives. I will review benefits as well as risks of certain types of green construction in terms of archival preservation. I will also consider how archivists can collaborate with architects, designers and engineers to apply green construction to archival facilities. Green construction for archival facilities.

Before discussing "green," it is necessary to consider the unique characteristics of archival facilities. First, archival facilities provide for collection needs. They have to support the proper preservation environment for different archival holdings, such as paper, photographs, films, digital media and so forth, with a high level of protection against fire, flooding, air pollution, humidity, sunlight, insects, animals, thieves, and vandalism. Second, archival facilities also have to meet the needs of people, providing the proper work environment for staff and archives' patrons. Third, the site selection, building type, and exterior and interior design of archival buildings will be dependent on types of archives. Each type of archives serves different types of holdings and users and has its

own mission. Finally, the world of archives is changing. Archives are facing constant changes in patrons, formats of holdings, technology, quantity of holdings, and staff requirements. The design of archival buildings should be flexible and adaptable to meet these future changes. In general archival facilities include the following components (Table 1) and each component should satisfy its own function.

*Table 1. General archival facility components*

<b>Area</b>	<b>Function</b>	<b>Requirement</b>
Stacks	Store holdings in complete safety with the highest level of environmental control	- Protect holdings against fire, flooding, air pollution, humidity, sunlight, insects, animals, and thieves
Processing area	Include a space for appraisal, arrangement, description, housing, photocopying, digitizing and so forth	- Provide a healthy, safe and comfortable environment for staff with processing supplies and equipment - Also provide proper environment for holdings stored in this area for processing
Conservation lab (optional)	Repair damaged documents	- Provide a healthy, safe, and comfortable environment for staff and holdings with sufficient conservation treatment equipment and infrastructure
Staff area	Include administrative offices, staff meeting rooms, and a break space	- Provide a safe and comfortable work environment for staff
Public area	Include a lobby, reading room, exhibit space, reference desk, reception desk, finding aids area, public meeting room and/or auditorium for public programs	- Provide a safe and comfortable work environment for users and staff - Support proper environment and security for holdings in reading room and exhibit space

Although the general environmental, social and economic benefits of green construction have been widely discussed by architects and engineers, archivists need to consider what kinds of green construction would be suitable and applicable for archives regarding the unique figure of archival facilities as mentioned above. Benefits as well as risks of certain green construction methods should be addressed. Risks should be minimized. The following table (Table 2) shows examples of green construction methods and their benefits for and risks to archival facilities in general.

*Table 2. Examples of green construction methods for archival facilities*

<b>Green construction methods</b>	<b>Benefits for archives</b>	<b>Risks to archives</b>
Utilize renewable energy resources (Solar/Wind/Hydro/Biomass energy)	- Save on energy bills - Support sustainable energy supply, especially for increasing demand for electronic equipment in archival facilities	Wind and hydro power may be suited to only a few locations.
Utilize natural daylight for office and lobby areas	- Save on energy bills	- Can cause UV exposure to holdings (In general, exterior windows are not recommended in storage, exhibit areas, and reading rooms due to UV exposure to holdings and security concerns. Exterior windows should not open, be as small as possible, and use



		double glazing to reduce heat gain or loss through windows.)
Use automatic lighting controls	<ul style="list-style-type: none"> <li>- Save on energy bills</li> <li>- Reduce unnecessary light exposure to holdings</li> </ul>	<ul style="list-style-type: none"> <li>- Greater initial cost of construction</li> </ul>
Use organic building materials	<ul style="list-style-type: none"> <li>- Provide healthier work environment for staff and users</li> </ul>	<ul style="list-style-type: none"> <li>- Even though they are organic and/or renewable, some building and finishing materials can release dust and gas that can damage holdings. (The National Archives and Records Administration provides information about materials that should be avoided in archival buildings due to the potential to damage holdings. )</li> </ul>
Use renewable construction materials	<ul style="list-style-type: none"> <li>- Less direct benefit for archives, but will be helpful to reduce solid waste disposal fees</li> </ul>	
Utilize natural air conditioning	<ul style="list-style-type: none"> <li>- Save on energy bills</li> <li>- Can prevent damage in case of technological failure of high tech climate control system.</li> </ul>	<ul style="list-style-type: none"> <li>- Can bring air pollutant and humidity from outside.</li> <li>- Can cause regular significant changes in</li> </ul>
Berm against the building	<ul style="list-style-type: none"> <li>- Reduce gain and loss of heat</li> <li>- Support sustainable temperature control</li> </ul>	<ul style="list-style-type: none"> <li>- Can cause water leaks</li> <li>- Can increase humidity</li> </ul>
Plant trees around the building	<ul style="list-style-type: none"> <li>- Can help reduce gain of heat by mitigating urban heat island effects</li> </ul>	<ul style="list-style-type: none"> <li>- Can cause insects and animal problems</li> </ul>
Plant local, drought resistant and pest resistant plants in the landscaping	<ul style="list-style-type: none"> <li>- Reduce water consumption and toxic insect control material</li> <li>- Can help reduce heat gain by mitigating urban heat island effects</li> </ul>	
Use a green roof	<ul style="list-style-type: none"> <li>- Reduce heat gain through a roof</li> <li>- Can be helpful for fire suppression</li> </ul>	<ul style="list-style-type: none"> <li>- Can cause roof leakage, roof collapse, insects, animal, and fungi problems (Since temperature and humidity changes can cause damage to holdings, the function of a roof as barrier against heat and moisture is important for archival facility. Also, careful calculation is required regarding the weight of the structure, holdings, shelving, and equipment.)</li> </ul>
Use of a storm water management and rainwater catchment system	<ul style="list-style-type: none"> <li>- Reduce storm water utility fees</li> <li>- Support sustainable water supply</li> <li>- Can be helpful for fire suppression</li> </ul>	<ul style="list-style-type: none"> <li>- Can cause water leaking problem especially for an underground level of an archival facility</li> </ul>

Examples of green construction methods suggested in the above table are categories of green construction rather than specific designs or techniques that can be applied on the actual construction site. For example, there are various green techniques to utilize renewable energy resources such as installation of a passive solar or active solar system. Smart glass that responds actively or passively to environmental variables such as room temperature and daylight can be

chosen among other techniques that maximize energy efficiency. As technology is developed and social demands increase, diverse cutting edge sustainable approaches to improve the green elements of buildings are under examination. Moreover, green construction does not necessarily rely on high-tech methods only. Low-tech approaches need to be under consideration as well.

There are historical buildings that successfully adopted natural environmental control systems. For example, the triple-layer wall design, good building materials, and well planned window placement used in the new Cologne City Archives building in Germany increased natural air-conditioning in the stack areas. These techniques were borrowed from the old building in where Cologne's paper records were kept from the 15th Century to the 19th Century. Helen Sheton provided briefly some examples of low-tech methods to keep environmental conditions stable in libraries and archives: the achievement of the Imperial Palace Archives in the center of Tokyo in keeping relative humidity stable by lining the walls with cedar wood planks, butt-jointed along the walls and the use of land mass around the building as thermal inertia in the Library and Archives Canada Gatineau Preservation Center building in Ottawa.

Benefits and risks of a certain green construction method for archival facilities can be widely different according to the financial situation, the outdoor climate and environmental setting, the unique characteristics of archival holdings, and the mission of individual archives. While there is no single answer nor one way to decide which green construction technique is appropriate for archival buildings, proper green methods can be sought and applied with a great deal of flexibility on a case by case basis.

## **Applications of green construction to archival facilities**

### ***Collaborations***

Applying green construction to buildings does not simply mean using advanced construction technology. It should be related to the overall design of a building in which the daily social activities of occupants and the outdoor environment of the building site should be reflected. It is also related to administrative issues, issues of available resources and technological capability (high-tech and/or low-tech), and the long term serviceability of a building. Thus a successful application of green construction to archival facilities can only be achieved through a high level of collaboration between archivists, architects, designers, and engineers at an early stage of architectural design and planning of the archival facility. In this collaboration, rather than trying to obtain professional knowledge about green construction techniques, archivists need actively to address the needs of all occupants of archival facilities, which are archival collections, staff, and patrons. The role of archivists may include:

1. Understanding collection needs, people needs, the social function and mission of their archives, and the landscape and outdoor climate condition of the site;
2. Developing a statement or a general idea about the overall purpose and/or priority of applying green construction to their archival facilities (i.e. enhancing the natural environment, increasing energy efficiency, minimizing non-renewable resources consumption and so forth);
3. Providing and explaining sufficient information about archives' needs to architects, designers, and engineers including the general required building component of archival facilities;
4. Brief research on available green construction methods to open up the discussion with architects, designers, and engineers (i.e. examples suggested in Table 2);
5. Carefully calculating (long-term) benefits and risks of possible green construction methods for

their own archival facilities in their discussion with architects, designers and engineers;

6. Actively participating in the building design and planning process to maximize benefits and minimize risks of chosen green construction methods.

### ***Sharing experiences***

While green museum and library building cases are available through the Internet, it is hard to find reported examples of contemporary green archival facilities. This does not mean that the archival profession has not taken environmental matters seriously. This might show that there is no open channel available for archivists to share their experiences about building green archives. This lack of reported cases of green archival facilities does not help archivists actively understand the importance of the issue of being green. This also implies that the archivist who wants to apply green construction to his/her own archival facility has to gather the necessary information and knowledge from ground zero. Since actual green archives projects will require a localized approach based on special needs and the environmental conditions of a given archives facility, the importance of sharing experience, knowledge and information among archivists through specific case studies of green archives building projects is high.

### **Conclusion**

While the term "sustainability" is interchangeable with the word "green" and their use in the literature depends on the context and the audience, many organizations that advocate for sustainable development define sustainability as meeting the needs of today without compromising the ability of future generations to meet their needs. Sustainable development starts with the long-term care and sincere understanding about people, society, and the natural environment. Increasing the sustainability of archival facilities through the application of green construction can be a win-win solution to "promote not only the conservation of our material culture, but also the conservation of our global environment" as the GAGA symposium keynote speaker, Michael Henry pointed out.

In this paper I suggested types of green construction that can be applied to archival facilities, including their benefits and risks regarding the unique figure of archival facilities. I also pointed out that applying green construction to particular archival facilities in real building projects requires careful understanding about the needs of archival holdings, people and the outside environment at the site as well as benefits and risks of a certain green construction method. Therefore building green archives cannot be achieved by the effort of individual archivists, but in the collaboration between archivists, architects, designers and engineers. To participate actively in this collaborative effort, sharing experience and information among archivists through combined case studies of green archives building projects is necessary.

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### **Notes**

<sup>1</sup>Richard C. Hill and Paul A. Bowen, "Sustainable construction: Principles and a framework for attainment," *Construction Management and Economics* 15, no. 3 (1997): 237.

<sup>2</sup>Building Services Research and Information Association (BSRIA) is a consultancy and research organization for construction industries based in the United Kingdom.

<sup>3</sup>Tom Woolley and others, *Green Building Handbook: A Guide to Building Products and Their*

Impact on the Environment (London: E & FN Spon, 1997), 5.

<sup>4</sup>From Gray Areas and Green Areas: Developing Sustainable Practices in Preservation Environments, <http://www.ischool.utexas.edu/~gaga/>. The symposium proceedings will be published and available through the symposium website soon.

<sup>5</sup>Types of archives include government (federal, state, and local) archives, academic archives (colleges and records of universities), collecting archives (historical societies and cultural institutions), and organizational archives (businesses, corporations, and religious archives).

<sup>6</sup>Thomas P. Wilsted, *Planning New and Remodeled: Archival Facilities* (Chicago: Society of American Archivists, 2007), 1-9.

<sup>7</sup>Michel Duchein, *Archive Buildings and Equipment* (Munich: Verlag Dokumentation, 1977); Christopher Kitching, *Archives Buildings in the United Kingdom, 1977-1992* (London: HMSO, 1993); Archives Ted Ling, *Solid, Safe and Secure: Building Archives Repositories in Australia* (Canberra: National Archives of Australia, 1998); Thomas P. Wilsted, *Planning New and Remodeled: Archival Facilities* (Chicago: Society of American Archivists, 2007).

<sup>8</sup>There is a considerable amount of literature about sustainable and green architectural methods. The following recourses were helpful to obtain general ideas about this topic; Peter Buchanan, *Ten Shades of Green: Architecture and the Natural World* (New York: Architectural League of New York, 2005); Brian Edward, *Green Buildings Pay*. (New York: Spon Press, 2004); Colin Porteous, *The New Eco-Architecture: Alternatives from the Modern Movement*. (New York: Spon Press, 2002); Kremers, J. A. (1995). "Defining sustainable architecture. *Architronic*, 4(3). Retrieved May 12, 2007, from <http://architronic.saed.kent.edu/n3/n3.02a.html>; Norton, J. (1995). Sustainable architecture: A definition. *Habitat Debate*, 5(2), 10. Retrieved May 12, 2007, from <http://www.housingfinance.org/>;

<sup>9</sup>I first gathered information about types of green construction from literatures in architecture. I considered the possible benefits of each type of green construction for archival facilities while reviewing general advantages of them discussed in the architecture and engineering fields. Risks addressed in this table reflect the possible harm of each type of green construction to archival facilities, regarding the particular architectural requirements for archival facilities as well as general disadvantages discussed in the architecture and engineering fields.

Wilsted, *ibid.*, 17.

<sup>11</sup>Peter F. Smith, *Sustainability at the Cutting Edge: Emerging Technologies for Low Energy Buildings* (Oxford: Architectural Press, 2003).

<sup>12</sup>In his presentation at From Gray Areas and Green Areas: Developing Sustainable Practices In his presentation at From Gray Areas and Green Areas: Developing Sustainable Practices in Preservation Environments symposium, Joachim Huber critically reviewed the main trend of 20th century that relies on highly sophisticated constructions and massive use of technology for the climate control in museums and archives while comparing them with the traditional building technology that was simple but more sustainable. The abstract of Joachim Huber's presentation, "Sustainability means less is more," can be found at <http://www.ischool.utexas.edu/kilgarlin/gaga/abstract.html#Fri2-4>

<sup>13</sup>Sandra Rowoldt, "The Greening of Archive Buildings: Natural Air-conditioning in the Southern African Countries," *Janus* 2 (1993): 36-42; Hugo Stehkamper, "Natural Air Conditioning of Stacks," *Resturator* 9 (1988): 163-177.

<sup>14</sup>Helen Shenton, "Strategic Developments in Collections Storage of Libraries and Archives: Architectural, Technical, Political," *Liber Quarterly* 15 (2005): 3-4.

<sup>15</sup>As an example, the Green Libraries website serves as a resource for creating more environmental friendly and sustainable libraries. This website provides the list of green libraries and information focusing on green library designs, green librarians, green buildings and green library organizations. The website URL is <http://www.greenlibraries.org/>. Greenexbihits.org provides museum exhibit designers "a resource for designing and building exhibits and environments that best support healthy spaces and a healthier future for kids and the environment." This website also contains case studies of green museum buildings. The website URL is <http://www.greenexhibits.org/intro.shtml>. Green Library Wikipedia page also provides a useful overview on sustainable libraries, available at [http://en.wikipedia.org/wiki/Green\\_library](http://en.wikipedia.org/wiki/Green_library).

<sup>16</sup>Woolley, *Green Building Handbook*, 5.

<sup>17</sup>Sustainable Philadelphia, What's sustainability?, <http://www.sustainablephiladelphia.com/html/whatis.html>.

<sup>18</sup>Michael C. Henry, "From the Outside In: Preventive Conservation Sustainability, and Environmental Management," *The Getty Conservation Institute Newsletter* 22, no. 1 (2007): 4.

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Sarah Kim received her M.S. in Information Studies from the University at Albany, State University of New York. She is currently pursuing a Ph.D. from the University of Texas at Austin, in Information Studies. Her research interests include long-term preservation of digital objects and personal digital archives.

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# A Comedy of Errors: Repository Renovation in Reality

Leigh McWhite, Political Papers Archivist & Assistant Professor, The University of Mississippi

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The University of Mississippi in July 2004 transferred responsibility for approximately 7,000 linear feet of political and legal collections from the Law School to the Department of Archives & Special Collections. At that time, the department faced a severe shortage of available storage space for new collections. University officials recognized and quickly resolved this dilemma by designating a soon-to-be vacant Physical Plant building for off-site library storage including an entire floor (6,900 square feet) for the newly created Modern Political Archives unit (MPA). In the mean time, two full-time staff and several student workers began processing one of the large congressional collections stored in an older structure scheduled for renovation itself that spring.

The archives building renovation described here by no means purports to be a case study in how institutions should manage such projects. Anyone who has read the literature or attended professional seminars on the subject will recognize that the following narration frequently contradicts recognized guidelines. Unfortunately, several useful resources did not appear or went undiscovered by the author until after the construction project ended. Those who foresee blueprints and construction particulates in their future should examine the more detailed and comprehensive advice provided by one or more of the following: Thomas P. Wilted's *Planning New and Remodeled Archival Facilities* (Chicago: Society of American Archivists, 2007); Northeast Document Conservation Center's website "Resources Preservation Leaflets, Emergency Management, 3.9 Protecting Collections during Renovation" at [www.nedcc.org/resources/leaflets/3Emergency\\_Management/09ProtectingCollections](http://www.nedcc.org/resources/leaflets/3Emergency_Management/09ProtectingCollections); the SOLINET online class by Kara McClurken "Under Construction" (December 2007). However, life rarely meets the ideal, and it often falls short. This aphorism would hold true even if University of Mississippi archivists had possessed more authority over the process. After all, any renovation or construction project typically encounters setbacks and delays.

In this particular instance, the archives also faced terms and timelines dictated by a university administration with limited resources and multiple competing interests as well as a construction management system which had no incentive to respond to client requirements. Physical Plant managed the construction project. At that time, it had no institutional system such as regularly scheduled meetings, progress evaluations, or project reviews with building occupants to encourage improved service or satisfaction. The archives initiated almost all contacts with Physical Plant and the project supervisor.

The following excerpted sequence of events took place between the fall of 2004 and the winter of 2007 during the Library Annex renovation at the University of Mississippi. The author provides this timeline as anecdotal evidence of various hazards and problems one repository experienced during the construction process...a warning for those facing similar projects to plan ahead, maintain vigilance, and expect the unexpected. This article will conclude with small series of general lessons learned.

- April-May 2005. With a June deadline fast approaching for when the MPA must vacate the original storage site, the archives discovers that Physical Plant has not yet completed interior demolition and renovation on the first floor of the new Library Annex where the MPA will permanently reside. The project supervisor promises to complete staff offices and workspace

prior to the move, but that the archives must temporarily store its collections for six months on the second floor of the Annex.

- 13 June 2005. On a preliminary trip to the new facility two days prior to the move, MPA staff members find the paint job uncompleted and construction debris everywhere. When the telephone serviceman arrives to install phones, he discovers that Physical Plant has removed all telecommunications wires throughout the entire building. On this same day, the project supervisor informs the archives that the flat roof leaks regularly and that a new roof and HVAC system are not scheduled for at least two more years. At this point in time, the Library Annex possessed only window air conditioning units. Since preservation plans called for plywood to cover all windows except those in workspaces, all but three units on the first floor and two units on the second quickly disappear. The thermometer on the upper level where the collections temporarily reside regularly reads 80-85 degrees first thing in the morning and thereafter climbs higher. Of more immediate concern, staff discovers that the raised pallet system installed on the second floor as temporary storage for the collections is not as described in previous meetings. The MPA staff hurriedly develops yet another moving procedure and creates a new schematic for arranging the collections.
- 15 June 2005. The first occurrence of a security problem that would plague the Library Annex throughout the renovation process takes place. Archives staff leave the building locked and later return to discover that Physical Plant workers had entered and then left the building empty and unlocked.
- 17 June 2005. Physical Plant informs the archives that further demolition will require use of a small bull dozer which will drive in and out of the building. Carpenters erect a framed plastic "wall" between staff work space and the hallway used by this heavy equipment. " 27 June 2005. Physical Plant damages an exterior door to the extent that it no longer closes and locks securely. A carpenter jury-rigs a temporary fix by nailing the door in place.
- 28 June 2005. Library representatives meet with the project supervisor to discuss ways to lower the temperature on the second floor. Electricians determine that the entire building will need rewiring.
- 30 June 2005. The HVAC engineer examines the Library Annex. The archive provides him with documents outlining archival standards for HVAC systems. Since there are no plans for roof replacement, all ductwork will run down the central aisle of the shelving stacks. On the first floor, this arrangement will cause anyone over 6'4 to walk in a stooped position down the hall. If the administration had made the decision at this point to install a new pitched metal roof, the ductwork could have gone between the old and new roofs.
- 6 July 2005. The Head of Special Collections emails a reminder to the project supervisor about the need to decrease the heat and humidity on the second floor of the Annex.
- 19 July 2005. A rainstorm results in significant leaks throughout the building. For the next year and a half, plastic sheeting drapes most of the collections and supplies. Upon request, carpenters remove a portion of the new drywall to insure that the leaks have not soaked the new insulation. Physical Plant installs plastic flashing to the outside area they believe causes the leaks.
- 27 July 2005. Physical Plant finally installs portable cooling units upstairs, but temperatures

remain in the high 80s.

- 15 August 2005. The project supervisor relays the HVAC engineer's opinion that the light-weight, off-the-shelf equipment he originally intended to install will not perform adequately.
- 23 August 2005. The electricians have reached the point where they can no longer continue working without the HVAC schematics. The HVAC engineer cancels his meeting with the project supervisor.
- 7 September 2005. The motors on the second floor portable cooling units freeze and create large puddles. Fortunately, all collection boxes rest on pallets to prevent contact with storm puddles.
- 9 September 2005. With no advance notice, men in hazmat suits appear, erect a plastic barrier to part of the first floor space, and hang an Asbestos warning sign. Over the next two days, they remove asbestos tile from the floor.
- 12 September 2005. Staff notices that one of the second floor portable cooling units is missing and its absence has left a foot-wide hole in the exterior door through which the vent had run. Members of Physical Plant had retrieved the unit for another function on campus.
- 16 September 2005. Puddles and leaks occur throughout the building from a previous night's thunderstorm.
- 26 September 2005. Ditto.
- 17 November 2005. MPA staff members relocate to Special Collections because the Library Annex is too cold. The next day, casual conversation with a previous resident in the building reveals that one of the first floor window units also has a heating function so staff returns to the Annex.
- 1 December 2005. The Dean of the Library, the Head of Special Collections, and other library representatives meet with the project supervisor, the Director of Physical Plant, and the University Architect. Participants receive maps that show the existence and scope of puddles regularly appearing after storms. The University Architect volunteers to approach the administration about advancing plans for a pitched metal roof. Physical Plant also promises to install better heating.
- 5 December 2005. Physical Plant drops off two small space heaters for the office.
- 12 December 2005. Physical Plant installs three large heating units in the rest of the Annex. However, only one is operable. Later in the week, the archive informs Physical Plant about current puddles including a leak that runs down the wall alongside the electronic circuit board.
- 4 January 2006. The compact shelving company begins installation. The Head of Special Collections discusses concerns that the HVAC engineer's delay in delivering specs will delay the bidding process and consequently installation of air conditioning until after summer heat had already begun.



- 11 January 2006. The project supervisor informs the archives that HVAC installation will finish by April and that the administration has approved a new roof to be completed by the summer.
- 13 January 2006. Extensive puddles appear throughout the building from the previous night's storm.
- 8 February 2006. Library staff attempt to turn on the large heating units, but oily smoke appears on the second floor. Physical Plant workers had failed to continue the vent up through the second floor out the roof.
- 13-24 February 2006. Roofing contractors place a new flat roof over the office area.
- 9 March 2006. A storm results in several puddles throughout the building, including locations that the new roof was intended to solve.
- 31 March - 18 April 2006. Archive staff and Physical Plant personnel move collections from the second floor to the compact shelving on the first floor.
- 3 April 2006. The project supervisor promises air conditioning within a month. Wary, the archives requests temporary cooling units in the building until HVAC installation is complete [air conditioning is not operable until the end of July; roof installation due before summer does not even begin until October].
- 11-14 July 2006. Contractors complete air conditioning installation and turn on the units. A few days later the roof units freeze into blocks of ice and the contractor reorders a malfunctioning part. The archives inquires into the delay of the Cold Room construction (an 800 square foot space on the first floor designed to store the department's photographs and recordings at lower than normal temperatures; the room will require specially designed ceiling and walls with a separate HVAC system). The project supervisor stated that the contractor will not return calls. When asked if the extensive delay voided the contract, the supervisor stated that the agreement did not include a firm completion date and voiced a desire to give the contractor more time.
- 21-25 August 2006. The Cold Room contractors finally arrive but quickly discover that a measuring error has caused them to order manufactured walls too large for the space. Installation waits as walls are cut down to size and a new door ordered.
- 30 August 2006. A new HVAC engineer conducts a final review to insure that the contractor has followed up on previous suggestions. When asked why humidity levels had not dropped to a level that would permit the elimination of supplemental portable dehumidifiers, the engineer replies that the specs for the HVAC contract contained nothing about maintaining the low levels of humidity required by archival standards.
- 13 September 2006. Library representatives meet with the roof contractor. Prior to erecting a pitched metal roof, the crew will remove tile, tar, and other materials leaving just the concrete roof. The contractor warns that during the next two-week period, the facility may experience leaks, but that he has purchased plenty of plastic sheeting to cover all the compact shelving on the first and second floors.
- 16 October 2006. The Cold Room crew completes installation, although the separate HVAC

system is not yet operable.

- 17 October 2006. Overnight, the roof contractor's pump on the old roof becomes clogged with tar and ceases working. Rainwater pours in and collects on the old roof. Archive staff arrive in the morning to find leaks everywhere from water seeping through the concrete ceiling. Despite plastic sheeting draping everything, damage is heavy on the second floor storage space for the Main Library; on the first floor, thirty boxes of political collections come into contact with water. Library staff react quickly, and Physical Plant supplies dehumidifiers, wet vacuums, and large fans to circulate air. Archives staff work all day laying out every damp document on any horizontal space available. Mid-morning, standing water is discovered underneath the plywood base of the compact shelving. Physical Plant personnel return with more water vacuums [fortunately, this water immersion has not resulted in buckling or mold growth].
- 10 November 2006. The archive asks the project supervisor for a timeline on the completion of the Cold Room.
- 21 November 2006. The contractor finally begins installing the new pitched metal roof and finishes the job over the Thanksgiving holiday.
- 12 January 2007. With all major renovation tasks complete, Physical Plant personnel no longer appear in the Annex on a daily basis. The archive sends an email to the project supervisor with a list of small, uncompleted tasks.

Remember, the above timeline is abridged (as well as expurgated). For examples of other mishaps, the author might have included descriptions of how a contractor left the keys inside a piece of heavy moving equipment and escapades by an unknown party resulted in expensive damage to university vehicles parked nearby. Or perhaps she could have mentioned the crew member discovered smoking in the building while installing compact shelving.

The perils described do not include numerous mundane details involved in construction. It also does not convey the ongoing efforts made by archive staff to educate Physical Plant personnel and contractor crews regarding the unique significance of the collections and their preservation requirements. Although the archives came into contact with several helpful, conscientious individuals during the course of this project, most workers involved did not care about archival priorities. That their supervisors also demonstrated little respect or concern certainly did not deter lapses in preservation standards. The author presents these problems not to complain but to emphasize the early, consistent determination needed to convince administrators, supervisors, contractors, and crew members that renovation of an archive-occupied building is not just another ordinary construction project. Legal agreements with outside contractors should reinforce this distinction by outlining agreed upon tactics to address preservation concerns and requiring liability insurance if damage occurs.

Another lesson learned is that all those involved in the decision making process should meet early in the planning stages to agree upon goals, budget, and blueprints. Participants should include high administration officials who have monetary approval, architects, engineers, construction supervisors, and representatives from the archives. If major changes appear necessary at any stage during construction, the group should convene again. Project supervisors and involved archivists should plan regular monthly meetings to review progress and report concerns. All interested parties should receive minutes of these sessions and retain copies of these records in a

project file.

Necessity dictated that the Library Annex renovation would proceed with the MPA already present in the building. The down side is obviously the vagaries of temperature and humidity, poor building security, particulates from construction and paint, and the potential for fire and water damage. The benefit from onsite occupation is that archivists were quick to spot undesirable actions and to suggest practical improvements in the plan. The library may never have understood the severity of leaks in the old roof if staff had not documented the resulting puddles from numerous rainstorms. These reports motivated the University Architect to lobby for a new roof sooner than anticipated. Any archives not currently inhabiting a facility under construction should arrange weekly inspection tours of the site to supplement the lack of daily observation.

Finally, although many readers might interpret the above timeline as a tragedy rather than a farce, the fiascos related did not result in death or document destruction. Like any comedy of errors, a happy resolution eventually emerged. In this case, the MPA now thankfully resides in a newly renovated facility with over 20,000 linear feet of compact shelving...of course, things have become a bit snug lately with the transfer of political collections from storage locales across campus and the donation of recent congressional records. "All's well that ends well" does not mean that experience has not taught valuable lessons that might smooth the path of future building endeavors!

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# Renovating the Atlanta History Center Archives: Moving People, Places and History

Emily Weaver, University Archivist, Delta State University

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The Atlanta Historical Society was founded in 1926 when a group of fourteen civic-minded Atlantans were called together by prominent attorney, Walter McElreath, with a desire to preserve the regional history by collecting manuscripts and photographs. With this storehouse of primary source information, the group was able to provide a rich cache of materials to scholars and general researchers. As the collections continued to grow, so did the scope and vision from those original founding members. The Atlanta History Center officially formed in 1991, encompassing over thirty-three acres of land with a newly constructed state-of-the-art museum, two interpreted historic home sites and a projected separate archives research center.

By 2001, the archival collections were stretching the seams of McElreath Hall with such major collections as the Philip T. Shutze & Harvey M. Smith libraries of architecture, decorative arts and design; the Cherokee Garden Library; the Sons of the American Revolution genealogical collections; the Beverly M. DuBose, Jr. and Thomas S. Dickey libraries; Franklin Garrett Necrology and Library; and the Civil War & military ordinances. It was time for a renovation. With the construction of the new museum completed, renovations to McElreath Hall would relieve the storage issues for the Archives and the entire building would be dedicated to the Archives.

Most of the major renovation planning, meetings with architects, and job assignments had already been decided when I joined the staff in 2001. For the purpose of this article, I spoke to those individuals who were involved in the behind-the-scenes planning for the renovation. They expressed to me how utterly important it was for the architects and the archivists to work closely together and keep each other informed as to what types of environments were best for particular collections, creating a positive environment for research patrons and staff, as well as keeping the public informed of closing and opening dates. Hindsight is most valuable here as my experience in moving large quantities of materials was pretty much non-existent. I was learning as we went through each day.

With the move from McElreath Hall to our off-site storage facility, I was simply responsible for labeling a particular section of collections and supervising their move from one building to the next. At this point, I really did not have to make any big, executive sort of decisions. I was able to observe how the process was supposed to work from someone who had really pulled our schedule together well. The move from McElreath to off-site storage was one of the most valuable learning experiences I have experienced in my professional career. In a few short months, the Archives opened again for business, the staff relocated to a small, temporary area and we began planning for the move back into our renovated building. While we were all settling in and getting used to collections being stored in on-site and off-site temporary storage areas, I got the assignment of a lifetime. I would be responsible for moving us back into McElreath Hall and I had almost a year to plan for it.

A year may seem like adequate time to take over a project in mid-stream; however, once we got down to the actual labeling of boxes, packing and moving again, I was still very anxious about our

plans. A timeline was essential. I began by looking at our projected date of when we would be back in the building and open to the public. When we moved out of McElreath Hall, we prepared the public for the Archives reading room to be closed. We had plenty of lead time to notify potential research patrons of the restricted access to collections during that time. We began notifying the public of the projected closing dates at least five months ahead of time. We had approximately two years where we would be in temporary locations and moving back in. Keeping the AHC staff and the public aware of project dates was crucial. Working with the renovation project manager and the Archives staff, we were able to work out a solid but flexible timeline which kept everyone informed of impending due dates for various parts of the moves.

Maintaining control and access to the collections was my next major concern. Our off-site storage facility involved a 45-minute round-trip drive from the Atlanta History Center and back. Running to the off-site facility every day would be possible but impractical. Therefore, the Archives staff had to create a plan that would allow for us to still provide access to the collections. The solution was that researchers could submit their requests for materials and those materials would be retrieved from off-site storage and delivered to the temporary reading room on specified days. For instance, if a researcher was planning a trip for a Saturday, they would need to submit a request for materials by Wednesday at 10:00 am to make sure that those collections would be available for his research on Saturday. Although the majority of records were kept in an off-site storage facility, there were some major collections held in the Archives' temporary storage located on the AHC campus. The collections kept on campus were those that were most often used by researchers. Because of the records kept on researchers and their requests over the previous year, we were able to determine which collections would be kept on campus. This plan worked for the most part, but as in everything, we could not please every one all of the time.

Once our temporary space solutions were up and running, I could focus on the project of moving all of the Archives staff, collections and supplies back into the newly renovated McElreath Hall. I considered the moving company which had moved us from McElreath Hall but also wanted to see what other types of movers were available to us. I set up several meetings with major moving companies and the Archives staff so that we could talk about our needs and their services. I had to be mindful of our moving budget and still find the safest way to move our collections. After all of the interviews, I decided with the help of the Archives staff that we would keep the moving company that had first moved us. They had worked well with the first phase of the move and we were confident they would do well with this final phase; however, I did decide that we would need some 'mover training' sessions.

The moving company we chose were very good movers. They arrived on time, were courteous and careful with our items, but we needed to go one step further. I felt it was important that the movers know exactly how important our carefully laid out order and plan was to a successful move. Therefore, several days before the first move was scheduled, I walked the moving company supervisors through our plans and then took them to the actual collections and told them how the boxes should be handled, lifted and stacked during moving. These moving supervisors would have a team of movers with them each day for which they would be responsible. The Archives staff would be paired up and assigned specific areas to supervise in packing and moving. My reasoning for having at least two Archives staff with each moving team was so that if anything happened or someone needed to take a break, there would always be at least one pair of eyes ensuring that collections remained in order. What I discovered was how hard it was for each archives staff person to keep their distance and not try to get in there with the movers and actually start moving boxes. We found out the hard way a couple of times how important it was for each of us to stand back and keep our eyes on the big picture of the moving process.

I was insistent, and the rest of the Archives staff agreed, that someone from the Archives be with collections and movers at all times. This included when the trucks were moving up and down the interstate from the off-site storage back to AHC campus. I took that part of the job very seriously, so much so that it earned me about five hours of sitting on the side of I-75 one evening. One Friday afternoon, I had been with the movers as we loaded the last truck of materials for the day. I would follow them back to AHC, unload the truck and begin our weekends on our merry ways. Well, as luck would have it, the last truck did not have enough energy to make it all the way back to the AHC. About two miles before our exit back on to Paces Ferry Road, the moving truck stalled and died on the side of the road. The movers were pretty ok with the situation. They called headquarters and told me that a big-rig tow truck would be on its way shortly. Well, there was no way in my mind that I was going to leave a moving truck full of priceless archival materials just sitting on the side of I-75 in rush hour traffic. I sat right there with the moving truck. Of course, I was in my own vehicle by myself. There were three moving guys in the truck. I'm sure they were having a good time visiting with each other.

As each hour ticked away, I was getting hungrier and more upset that I was going to have to spend the night on the side of I-75. I was seriously considering calling to see if Domino's delivered to stranded drivers when the tow truck and the owner of the moving company pulled up. We were rescued and the collections would be safe. I could not have been happier to have seen another person at that moment! I still was not crazy about the fact that the collections would spend the night on the locked truck until the next morning when we could transfer the collections from the broken down truck to another one and have them moved into the Archives, but that was the only solution at the time. I did follow the truck to the movers' headquarters and watched as the truck was backed up into the loading area, locked inside the gate and I made sure the night guard knew to keep a special eye on that truck. I realize now that I may have been a little too protective. I must say again how wonderful our moving company was. They were patient with me as I had a semi-meltdown about the stalled out truck and every time I asked them to move some shelving one more time, they never once were frustrated with me, at least not directly in front of me.

Collections were not the only things that needed to be moved back into McElreath Hall. Before the renovation, the Archives had dominated the ground floor of the building. After the renovation, the entire building was dedicated to the Archives, which meant that collections could spread out more on not just one floor but two! I decided to color code everything so that movers and archives staffers would be able to easily recognize where containers of collections would need to go, first floor or ground floor. Color coding worked out best with all of the moving needs. Since we had to take collections from one huge warehouse, where photographic collections were mixed with Cherokee Garden collections and general reading room books, we created a standard color code for where containers of collections would need to be delivered. The moving company had provided large, rolling metal containers which would allow for the majority of our box sizes to fit comfortably. These containers were open on one side and shelves could be installed so that boxes on the bottom of the containers would not have to bear the load of six or seven boxes stacked on top of it. Then these containers would get a color coded, sequenced sticker and be wrapped with shrink wrap for the move on the trucks back to AHC campus. On the outside of each wrapped metal bin, the archives staff would apply another color coded sticker and the sequence number so that when the containers were unloaded at AHC campus, the receiving archives staff and moving guys could organize the containers quickly and begin to pull the boxes off of the containers in an organized manner.

Originally, all of the collections were housed on metal, static shelving. One of the many special treats of the renovation was the new moving, compact shelving units which were installed in two of the three major storage spaces on the ground floor. However, we still needed to bring back many of the static shelving units that had been taken out to the off-site storage areas. A big challenge was having to balance taking collections off of shelves at the off-site area, then disassembling shelving, shipping it on the correct truck back to AHC campus, and having it reassembled in time for the collections to go back on the shelves. Some of our most time-consuming mistakes were when static shelving from off-site were placed on the wrong trucks and we had to wait for the trucks to arrive and the shelves to be assembled.

With more available space to dedicate to collections storage, we were also able to separate the collections more and create better environments. For example, the manuscript collections were stored in Stacks One while photographic collections were stored in Stacks Two. Because of the varying environmental needs of these collections and the available space to separate them, we were able to create better environments for both types of collections. Of course, physically separating these collections was much easier said than done. Months and years of work has gone into creating wonderful finding aids to help researchers find the collections they need and then assist the Archives staff in finding the collections in their new locations. The behind the scenes work such as this is immeasurable and immense. I will always be grateful and in awe of the wonderful work the archivists did in preparing collections and following through with such fabulous finding aids.

The original reading room had been a small room tucked away on the ground floor of McElreath Hall. With the renovation, the reading room would be located on the first floor and would be at least four times as large as the original room. Again, more space was wonderful but deciding on how that space was to be laid out and where different collections would be shelved was an extensive exercise in planning. We were now able to dedicate space to major collections such as the Cherokee Garden Library, the Genealogical collections, Civil War & military ordinances and a replica of Franklin Garrett's home library was created in the main entrance-way to the reading room to honor 'Atlanta's official historian'. The renovation was accomplishing so many goals.

I had many different kinds of computer programs available to me to help me lay out floor plans. They were wonderful to experiment with and try new possible shelving layouts. Yet, what I found to be the most helpful was actually taking chalk and measuring tape down to the newly renovated storage rooms and chalking out where the static shelving would be placed. I had to create a list of how many pieces of shelving we had in each of the different sizes and where those sizes of shelving would fit best with which collections stored on them. Also, I had to keep in mind how large and deep the boxes would be on each shelf so that there was plenty of room to get a cart between rows of shelving and the boxes off of the shelves. Just when I would think I had the perfect mix of shelving sizes and arrangement laid out, I would bump into one of those fabulously helpful concrete, load bearing pillars. They were doing a great job holding the floor up, but they really did cause me hours of grief in laying out floor plans. I went through countless boxes of sidewalk chalk, but I had to make sure that we maximized our new space. It had taken almost 75 years for this renovation to take place. This move had to stand the test of time for at least another 75 years!

As with any move, not everything is done even when the last box is placed on the shelf and the last moving truck pulls away from the dock. I remember walking down the rows of newly placed shelving thinking, "maybe it should have been four inches wider here" or "I hope I made the right decision in putting this collection here". I learned something new every day on how to make the moving process better, how to work with my co-workers more effectively and sometimes I learned

things that I would never do again! I have a huge sense of ownership over the move back into McElreath Hall and for a while, I took things personally when someone did not like where a shelf stood or how boxes had been placed back on shelves. But I quickly remembered that I could not please everyone all the time. I did the best that I could with what I had. I can laugh at myself now at how eager I was to begin this project, not knowing fully all that would be involved. I suppose it was better that I had no idea really how much 15,000 cubic feet of collections really were. I might not have even tried it had I known at the beginning everything I learned at the end of the process. Above all my self doubt and anxiety, moving back into our newly renovated McElreath Hall was a huge sigh of relief. We had two years of challenging situations but we never lost sight of the final goals. The entire Archives staff worked tirelessly to keep the collections safe and accessible. Now, six years later, everyone is still thrilled with the space, design and layout of offices, collections, public spaces, etc. I believe that Mr. McElreath and those original 14 Atlantans would be proud of the home we created.

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